

REMARKS

Entry of the foregoing and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

Claims 1-6 were pending in this application. In this response, no claim is amended, canceled, or added. Thus, claims 1-6 remain pending.

REJECTIONS UNDER 35 U.S.C. § 102

Claims 1-6 are rejected under 35 U.S.C. § 102(a) as being anticipated by “Cathodic arc evaporation of (Ti,A1)N coatings and (Ti,A1)N/TiN multilayer coatings—correlation between lifetime of coated cutting tools, structural and mechanical film properties” to Weber et al. (hereafter “*Weber*”) on the grounds set forth on page 2 of the Office Action. Specifically, the Examiner alleges that *Weber* discloses the claimed coatings on cutting tools with the claimed intensities and made by the claimed method.

Applicants respectfully traverse the rejection. To establish a *prima facie* case of anticipation, a single prior art reference must teach each and every element of the claimed invention, either explicitly or inherently. *Verdegaal Bros. v. Union Oil Co. Cal.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Claim 1 recites “wherein both the intensities of the (111) and (200) reflections, I(111) and I(200), are <7.5 times the intensity average noise level.” In contrast to the Examiner’s allegation, *Weber* fails to disclose at least this element of the claims. *Weber* discloses strong diffraction peaks at either I(111) or I(200) depending on the voltage bias. *See, e.g.*, p. 230. Specifically, *Weber* discloses in Fig. 4 that the I(200) at -50 V bias is around 1300 compared to noise below 100, which is an intensity of at least 13 times

average noise. Further, in Fig. 5 of *Weber* the I(111) at -100 V bias is around 1200 compared to average noise below 100, which is an intensity of at least 12 times average noise. *Weber* fails to disclose a coating wherein both I(111) and I(200) are < 7.5 times the intensity average noise level as recited in claim 1.

Further, *Weber* fails to recognize the benefits of a coating where the intensities of I(111) and I(200) are both kept low. Therefore, there would have been no reason to modify the coatings of *Weber* to have intensities of I(111) and I(200) that are both low. In contrast, Applicants discovered that the adhesion of coatings having high compressive stress can be improved by forming the coating with relatively low intensity levels for I(111) and I(200).

Therefore, for at least the above reasons, no *prima facie* case of anticipation is established. Dependent claims 4-6, which depend from claim 1, are also not anticipated for at least the reasons for claim 1. Accordingly, Applicants respectfully request withdrawal of the rejection.

Claim 2 recites “depositing the layer with a bias, U, in a range $-90 < U < -50$ V with a nitrogen pressure in the range of 20-40 μ bar; an arc current in a range of 160-220 A and a temperature in a range of 400-600 $^{\circ}$ C.” *Weber* fails to disclose at least this combination of elements. Specifically, *Weber* is silent on the arc current used during the deposition, and *Weber* discloses that the nitrogen pressure during deposition is 5 Pa, which is equivalent to 50 μ bar. *See, e.g.*, 2nd column of p. 228. Further, it can be shown that these differences are affecting the coating produced by the method based on the fact that at -100 V substrate bias, the instant disclosure discloses intensity levels for I(111) of less than 3 times the average noise level of 150

(see, e.g., p. 5, ll. 17-18 and p.9), whereas the I(111) value for *Weber* at -100 V substrate bias is at least 12 times the average noise level as explained above (see, e.g., Fig. 5 on p. 230).

Therefore, for at least the above reasons, no *prima facie* case of anticipation is established. Dependent claim 3, which depends from claim 2, is also not anticipated for at least the reasons for claim 2. Accordingly, Applicants respectfully request withdrawal of the rejection.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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